

User manual

Installation and Service
Circuit carbonator

pulsar
SERIE

MAX  **ICE**
Inside



Pulsar 40
Pulsar 60
Pulsar 80
Pulsar 100

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1. EU - Conformity

This unit complies with the guidelines, regulations of the EU

- EU EMC guideline 89/336/EWG
- EU LVD guideline 73/23/EWG (93/68/EWG)
- EU guideline for machines 89/392/EWG

The following harmonised standards have been used:

EN 55 014-1:1993 + A1 :1997 + A2 :1999

EN 61000-6-2 :1999

EN 61 000-3-2:1995 + A1:1998 + A2 :1998 + A14 :2000

EN 61000-3-11 :2000

EN 60335-2-24:2000

EN 60 335-1:94 + A11:95 + A1:96 + A12:96 + A13:98 + A14:98 + A15:00
+ A2:00



2. Safety Instructions

The units comply with the current standards and regulations of the EU and represent the current standard of technology.

Safety during installation, operation and decommissioning can only be ensured by following the instructions in this user manual.

Any work or maintenance must be conducted in accordance with the following safety instructions.

Technical changes to safety devices are strictly forbidden.

Installation, maintenance and repair on this equipment must be carried out by suitably trained personnel.

Only use genuine spare parts.

Non-compliance with these instructions may result in serious injury or death.

Scotsman Beverage Systems and its legal entities ensure no liability for damage caused by the use of non genuine spare parts or by improper treatment of the equipment.



Ways the equipment should be used

The units are intended for use as a cooling and recirculation unit for syrups and carbonated water to provide the correct conditioning for serving draught soft drinks and as such should only be used for that purpose. There are NO other recommended uses for this equipment.



System pressure

The carbonator is an integral part of the unit and it should be noted that the carbonation process involves the use of high pressures and potentially noxious gas and as such due care should be taken when handling, installing and maintaining the equipment with particular regard to these hazards.



Carbon dioxide

Carbon dioxide leaks are potentially fatal if concentrations rise to dangerous levels, in view of this installation should be regularly checked for integrity and the general area of installation properly ventilated at all times.

See carbon dioxide warning at rear of booklet.



WARNING: THIS EQUIPMENT MUST BE EARTHED



IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

Green and Yellow	Earth
Blue	Neutral
Brown	Live

As the Colours of the Wires in the Mains Lead of this Appliance may not correspond with the Coloured Markings identifying the Terminals in the Plug to be fitted proceed as follows:

- a) The wire which is coloured green and yellow **MUST** be connected to the terminal in the plug that is marked with the letter ,ETM or by the earth symbol, coloured green or green and yellow or laser cut into the metal casing.



- b) The wire which is coloured blue MUST be connected to the terminal in the plug that is marked with the letter ,NTM or coloured black.
- c) The wire which is coloured brown MUST be connected to the terminal in the plug that is marked with the letter ,LTM or coloured red.



Power isolation method

All units are fitted with a single phase 3 pin 13 amp plug. The Pulsar 40 and 60 are fitted with a 10 amp fuse, the Pulsar 80 with a 13 amp fuse and the Pulsar 100 with a 16 amp fuse. Alternatively, a standard Euro plug to IEC83:1975.

Before commencing any work/maintenance -

- a) Switch off the socket that the plug is installed in to.
- b) Remove the plug from the socket.
- c) A heat dump is included with all water cooled units. The connecting plug should be removed from the glycol module.



Rotating parts

Some components will rotate for a short period after the power to the unit has been switched off. These components should be avoided until stationary.



Heat

The compressor, condenser, high pressure refrigeration tubes and motors will become hot during operation. Please avoid any contact to these parts during and after operation until they have cooled down.



Sharp edges

Scotsman Beverage Systems try to avoid any sharp edges. Based on the methods of production and the material used this can not always be guaranteed. Therefore handle the unit with care to avoid possible cuts.



Correct safe handling

Pulsar 40, 60 & 80

The weight of these units is such that other than moving it across flat ground (which is facilitated by integral castors / wheels option) or lifting to a relatively safe height of 12" utilising two people, a mechanical lifting device should be used.

Pulsar 100

The weights of this unit is such that other than moving it across flat ground (which is facilitated by integral castors / wheels) a mechanical lifting device should be used.



Unit weights

Pulsar 40	Integral	75 kg (Dry)
Pulsar 40	Water Cooled	73 kg (Dry)
Pulsar 60	Integral	79 kg (Dry)
Pulsar 60	Water Cooled	77 kg (Dry)
Pulsar 80	Integral	92 kg (Dry)
Pulsar 80	Water Cooled	90 kg (Dry)
Pulsar 100	Integral	150 kg (Dry)
Pulsar 100	Water cooled	150 kg (Dry)
GLYCOL MODULE		13 kg (Dry)
HEAT DUMP		9kg (Dry)



WARNING: ONLY LIFT THIS EQUIPMENT IN ITS DRY STATE



Adjustment / maintenance requirements

It is not recommended that the end user makes any adjustments or carries out any maintenance other than:

Check the mains lead and plug visually for condition.

Check the unit and its pipework for evidence of leaks visually, including the heat dump.

Check that the condenser grill and vents are not choked or obscured, including the heat dump.

If there is any spillage of liquid onto the unit, isolate the power supply before cleaning up.

Make any necessary adjustments as recommended by the syrup supplier.



NOTE: THERE ARE NO USER SERVICEABLE PARTS

Methods of cleaning



NOTE:

Persons performing Cleansing /Sanitizing operations **MUST** be competent and fully trained in safe methods of use of Cleansing / Sanitizing Agents and their applications.

Personal protective equipment should always be used

Do not use a water or steam hose to clean the unit whilst still installed.

It is important that all the vents and grills are kept clear (including condenser grills where applicable) otherwise cooling performance decreases and the system overheats.

Regarding the cleansing and sanitising procedure please refer to national/EU regulations. For the UK please follow the below mentioned procedure:

TWICE ANNUALLY: By a competent service \ maintenance engineer

Isolate unit from mains electricity supply.

Clean and sanitize the unit's cooling coils and product lines using proprietary cleanser / sanitiser of the Alkaline Hypochlorite type in accordance with the manufacturer's recommendations. Or follow the direct cleaning recommendations laid down by the syrup supplier.

ANNUALLY: By a competent service / maintenance engineer

Isolate unit from mains electricity supply.

Remove any extraneous debris from the unit or its casing preferably using a vacuum cleaner or brush, including the heat dump.

Check unit for electrical safety.



Prevention of freezing / action required if freezing occurs

It is recommended that the unit is sited in such a way as not to expose it to temperatures likely to cause freezing i.e. below 0°C. If the unit is to be sited in an unheated area then it would be wise to insulate all pipework and provide some form of emergency heating which should be controlled by a frost stat. and sited in the close proximity to the unit.

It should be noted that heat dumps may require to be sited where freezing may occur which is why a 30% glycol \ water mixture is used as a coolant. Failure to adhere to this recommendation could result in damaging consequences. The concentration of the coolant should not be compromised, and in the event of spillage, the lost volume should be replenished with the correct mixture.

In the event of freezing up occurring the following action is recommended:

1. Isolate the unit from mains electricity supply.
2. Disconnect the heat dump power cable.
3. Isolate product supply from unit.
4. Vent pressure lines by opening dispense tap.
5. Isolate from heat dump (coolant lines) using service valve.
6. Apply gentle warmth to the general area of the unit and its pipework.
7. Check for obvious leaks.
8. Turn water supply on whilst continually watching for leaks.
9. Reconnect product supply.
10. Reconnect mains electricity supply and heat dump supply.
11. Observe unit running for a short period watching out for leaks, strange noises or any other form of malfunction, if no problems are observed then normal operation of the unit may be resumed.

i **MAX. / MIN. ambient temperatures**

COOLER UNIT:	Minimum	+ 10°C	Maximum	+ 42°C
HEAT DUMP UNIT:	Minimum	– 5°C	Maximum	+ 42°C

i **MAX. / MIN. water pressures (dynamical)**

Minimum	20 PSI (1.4 BAR)
Maximum	60 PSI (4.1 BAR)

i **MAX. / MIN. CO2 PRESSURES**

Minimum	75 PSI (5.1 BAR)
Maximum	90 PSI (6.1 BAR)

i **Dismantling / decommissioning procedure**

1. Isolate the unit from mains electricity supply and the mains water supply.
2. Drain off all post mix products including the syrup and carbonated water (clean syrup lines as recommended by the syrup supplier).
3. Turn the CO2 off and disconnect all lines associated with the regulator, also vent pressure from lines by purging the product valves as required.
4. Disconnect all post mix pipework and remove dispense head equipment, including the python, and remove as recommended by the equipment owner.
5. Siphon or pump out water from the waterbath to a suitable drainage point.
6. Allow ice bank to melt (the careful use of hot water may be used to accelerate this process). Remove any remaining water from melting the ice.
7. Drain all the glycol \ water from water cooled units into a suitable container and dispose of it in accordance with the instructions given by the dispense equipment owner.



IMPORTANT: FAILURE TO REMOVE ALL ICE / WATER COULD RESULT IN SUBSTANTIAL AMOUNTS OF WATER BEING RELEASED FROM THE UNIT WHICH MAY BE DETRIMENTAL TO THE UNIT AND/OR ITS SURROUNDINGS AND INCREASE THE MAXIMUM WEIGHT OF THE UNIT.



IMPORTANT: THIS EQUIPMENT CAN CONTRIBUTE TO THE AMBIENT TEMPERATURE.



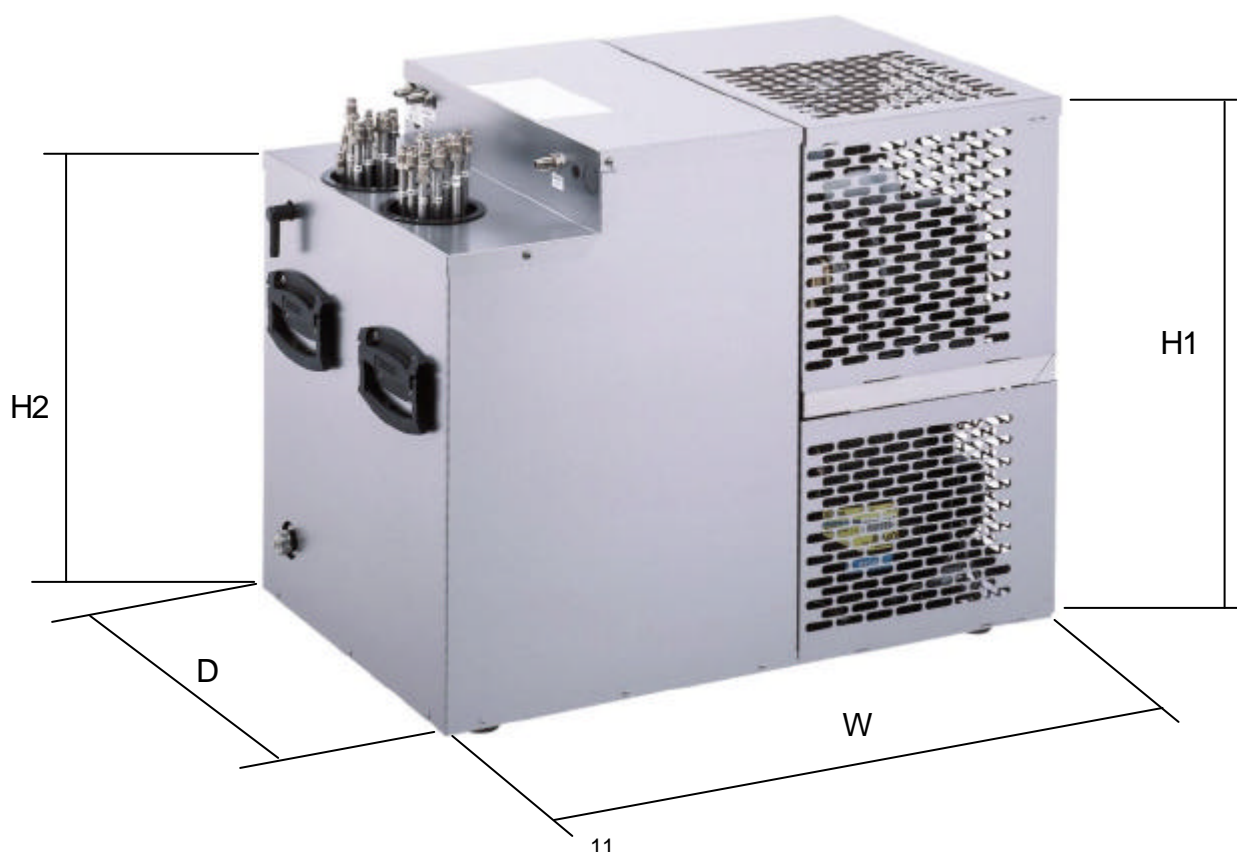
WARNING: THIS UNIT IS UNSUITABLE FOR USE BY UNSUPERVISED CHILDREN, AGED OR INFIRM PERSONS.



IMPORTANT: PUMP PRESSURE TO CARBONATOR BOWL 13.6 BAR (200PSI).

i 3. Technical Data

	Pulsar 40	Pulsar 60	Pulsar 80	Pulsar 100
Electr. Power	230V / 50Hz 230V / 60Hz	230V / 50Hz 230V / 60Hz	230V / 50Hz 230V / 60Hz	230V / 50Hz 230V / 60Hz
Input Power	1100W	1300W	1300W	1650W
Compressor	SC12 G 12cc (3/8HP) Danfoss	SC 18 G 18cc (2/3HP) Danfoss	SC 21 G 21cc (4/5HP) Danfoss	CAJ4511 33cc (1 1/3HP) L'Unite
Refrigerant	R134a 375gr.	R134a 375gr.	R134a 425gr.	R134a 1100gr.
Water Bath	38 litres	51 litres	65 litres	114 litres
Ice-Bank Size	13,2 kg	20 kg	25 kg	50 kg
Height H1	550mm	590mm	630mm	830mm
Height H2	470mm	510mm	550mm	670mm
Width W	700mm	750mm	865mm	1100mm
Depth D	430mm	460mm	535mm	625mm
Weight (dry)	75 kg	79 kg	92 kg	145 kg
Heat Dump Weight	9 kg (dry)			
Glycol Module Weight	13 kg (dry)			





4. Installation Instructions

PULSAR SODA CIRCUIT COOLER RANGE INSTALLATION INSTRUCTIONS FOR INTEGRAL & WATER COOLED UNITS



NOTE: The unit should be installed and serviced by a suitably trained person.



NOTE: Sealed plugs may be fitted to new units.

1. Unpack the unit from its transportation packing and visually check for any signs of damage.
2. Site the unit in a convenient location in the cellar or room on a level surface where it is to be located and make sure that a mains electricity supply is within 2 meters and in an area allowing free circulation of air. The unit should be fitted with a correctly fused and wired 13 amp plug fitted with the correct fuse as below or alternatively a standard Euro Plug to IEC83:1975.

Fuses for standard UK plug:

Pulsar 40	Integral & Water Cooled	-----	10 AMP FUSE
Pulsar 60	Integral & Water Cooled	-----	10 AMP FUSE
Pulsar 80	Integral & Water Cooled	-----	13 AMP FUSE
Pulsar 100	Integral & Water Cooled	-----	16 AMP FUSE

3. If the unit is a water cooled version, the glycol module and heat dump must be installed and connected as detailed in the **GLYCOL MODULE AND HEAT DUMP INSTALLATION INSTRUCTIONS** in this manual before commissioning the complete system.

Installation procedure for units with self priming soda recirculation pumps

4. Connect the dispense head to the unit using suitable fittings and python, referring to the connection diagram on the lid of the cooler and those supplied with the dispense head.
5. Connect a mains water supply of 2.5 bar to 4 bar to the tube labelled 'WATER IN' (do not turn on yet).

6. Connect all products to the unit as labelled (do not connect to the syrup containers yet).
7. Connect CO₂ gas supply of 5 bar to 6.3 bar to the cooler using the tube labelled 'CO₂ IN' (do not turn on yet).
8. Fill the water bath with fresh clean **COLD** water until the overflow level is reached.
9. Connect the unit to the mains electricity supply (do not turn on yet).
10. Turn on the CO₂ supply and vent the carbonator bowl using the relief valve located on the top of the bowl. Additionally, operate the dispense valve until the air in the python lines is purged.
11. Turn on the mains water supply.
12. Check for obvious leaks and rectify before proceeding any further.
13. Ensure that the soda recirculation pump and carbonator pump are switched off.
14. Switch on the unit at the mains power supply and allow ice bank to build.
15. If the unit is a water cooled version , ensure that the glycol lines prime correctly and that the glycol module is topped up to the correct level.
16. Switch on the carbonator pump and soda recirculation pump.
17. Prime the dispense head by operating the valves and ensure all pockets of CO₂ are removed from system.
18. Reconnect/switch on the soda pump.
19. Connect the syrup containers and operate dispense valves until syrup is dispensed.
20. Refit the top cover to the base unit.
21. The dispense head can now be brixed and the system will be ready to use.

Alternative installation procedure for units with magnetic coupled soda recirculation pumps

1. Connect the dispense head to the unit using suitable fittings and python, referring to the connection diagram on the lid of the cooler and those supplied with the dispense head.
2. Connect a mains water supply of 2.5 bar to 4 bar to the tube labelled 'WATER IN' (do not turn on yet).
3. Connect all products to the unit as labelled (do not connect to the syrup containers yet).
4. Connect CO₂ gas supply of 5.1 bar to 6.3 bar to the cooler using the tube labelled 'CO₂ IN' (do not turn on yet).
5. Fill the water bath with fresh clean **COLD** water until the overflow level is reached.
6. Connect the unit to the mains electrical supply (do not turn on yet).
7. Turn on the CO₂ supply and vent the carbonator bowl using the relief valve located on the top of the bowl. Additionally, operate the dispense valve until the air in the python lines is purged.
8. Ensure that the soda recirculation pump and carbonator pump are switched off.
9. Connect the unit to the mains electrical supply and turn on.
10. Turn on the mains water supply.
11. Check for obvious leaks and rectify before proceeding any further.
12. Switch on the carbonator pump and allow the bowl to fill.
13. Open one of the dispense valves until carbonated water is dispensed from the system.
14. Switch on the soda recirculation pump.
15. Open one of the dispense valve until an uninterrupted flow of carbonated water is present.

16. Connect the syrup containers and operate the dispense valves until syrup is dispensed.
17. Refit the top cover to the unit.
18. The dispense head can now be brixed and the system will be ready for use.

Heat dump and glycol module installation – water cooled units



HEAT DUMP - GENERAL GUIDELINES

1. It is important that the heat dump is sited correctly to enable it to work efficiently. The guidelines below should be adhered to wherever possible.
2. Ensure the unit is sited on an outside wall (preferably non south facing) in the correct orientation out of direct sunlight.
3. Ensure there are no other heat sources, i.e. a condensing unit or another heat dump, in the immediate vicinity, where hot air may be re-circulating.
4. Use the recommended tubing (15mm O/D, 10mm I/D Special EVA) to connect the base unit to the heat dump. Do not use PVC braided tube, as this is not compatible with glycol and will degrade over a period of time.
5. Do not exceed the recommended distance and lift from the base unit to the heat dump of 9m lift, 40m run.
6. The heat dump must be connected using a minimum of 1.5mm two core cable. If a smaller cable is used, a voltage drop will occur which may cause the fan motor to run at a reduced speed.
7. If the unit is to be installed inside a building or room, ensure that there is adequate ventilation within the room to enable the heat to be dissipated effectively. Temperatures within the room should not exceed 40°C
8. Do not kink the flow and return tubes which would restrict the coolant flow.
9. Do not insulate the flow and return lines.

10. The flow and return lines must not be strapped together, as heat transfer between the two will effect the system performance.
11. Ensure that the heat exchanger matrix of the heat dump is kept clean and free from obstructions. It is recommended that it should be cleaned with a soft brush at regular intervals.
12. To enable the heat dump to be mounted on a flat surface, a floor standing mounting kit is available as an option. (Order part number 09-0203-01).

GLYCOL MODULE installation instructions



NOTE: The unit should be installed and serviced by a suitably trained person.

1. Site the glycol pump module within 2 meters of the base unit and use the bracket supplied to secure the module to a wall.
2. Connect the glycol module's power supply to the 240V power outlet socket on the base unit. (DO NOT SWITCH ON YET)
3. Using Cobracol tubing, connect the 'COOLANT FLOW' from the glycol module to the 'COOLANT IN' on the base unit.
4. Again using Cobracol tubing connect the 'COOLANT OUT' from the base unit to the 'FLOW' on the heat dump. Connect the 'RETURN' on heat dump to the 'COOLANT RETURN' on the glycol module to complete the circuit.
5. Finally, connect the 1.5mm twin wire coming from the heat dump to the 24V outlet socket on the glycol module using the two pin plug supplied with the glycol module. It does not matter which way the wires are connected as they are not polarised.
6. Ensure the lines are correct and secured neatly and free from kinks.
7. Fill the glycol module reservoir tank with a quantity of coolant mixed 30% glycol to 70% water, ensuring a quantity remains for topping up the system when priming.
The following table should be used as a guideline for the volume of coolant for varying installations.

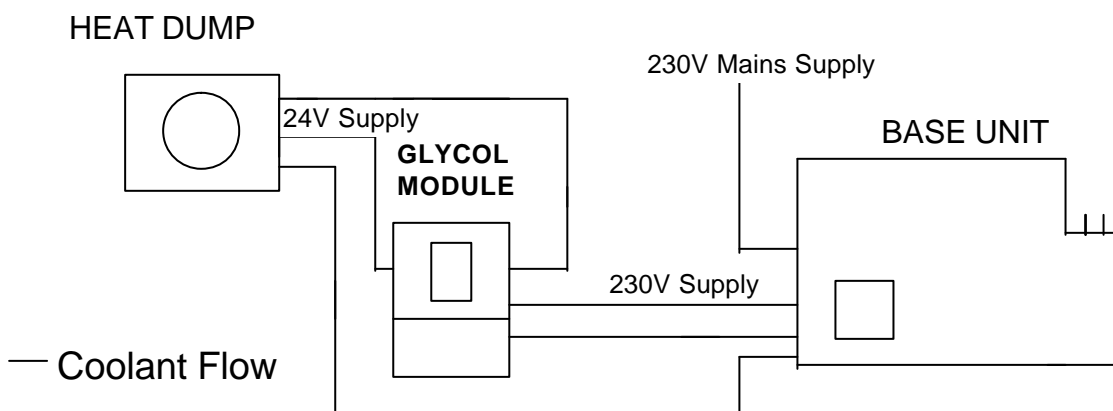


NOTE: Maximum Lift = 9m Maximum Run = 40m

DISTANCE FROM BASE UNIT TO HEAT DUMP	APPROX. VOLUME OF GLYCOL	APPROX. VOLUME OF WATER
5 m	4.25 ltr.	8.25 ltr.
15 m	4.50 ltr.	9.00 ltr.
20 m	4.75 ltr.	9.25 ltr.
30 m	5.00 ltr.	10.00 ltr.
40 m	5.40 ltr.	10.60 ltr.

8. On the base unit, locate the compressor switch and ensure that it is in the 'OFF' position. This will aid with priming of the cooling system.
9. Referring to point 4 on Page 1 , complete the installation up to point 14. Upon switching the unit on, the pump in the glycol module will start together with the heat dump fan, the refrigeration remaining off. As the system primes, the level will drop in the coolant header tank. Keep topping this up until the system is full, there are no air locks and that coolant is returning freely into the header tank. If the system trips out on the thermal switch whilst priming, this will have to cool before it automatically restarts.
10. Switch the compressor switch to 'ON' and finish the installation.

Water cooled unit – equipment connection schematic





WARNING

All water cooled units are fitted with an auto reset thermal switch to protect the compressor. If a fault occurs it is likely to be one of the following:

1. Low water \ glycol level , coolant leak, blockage within cooling system.
2. Component failure: heat dump fan motor, water pump, 24V transformer, wiring fault.

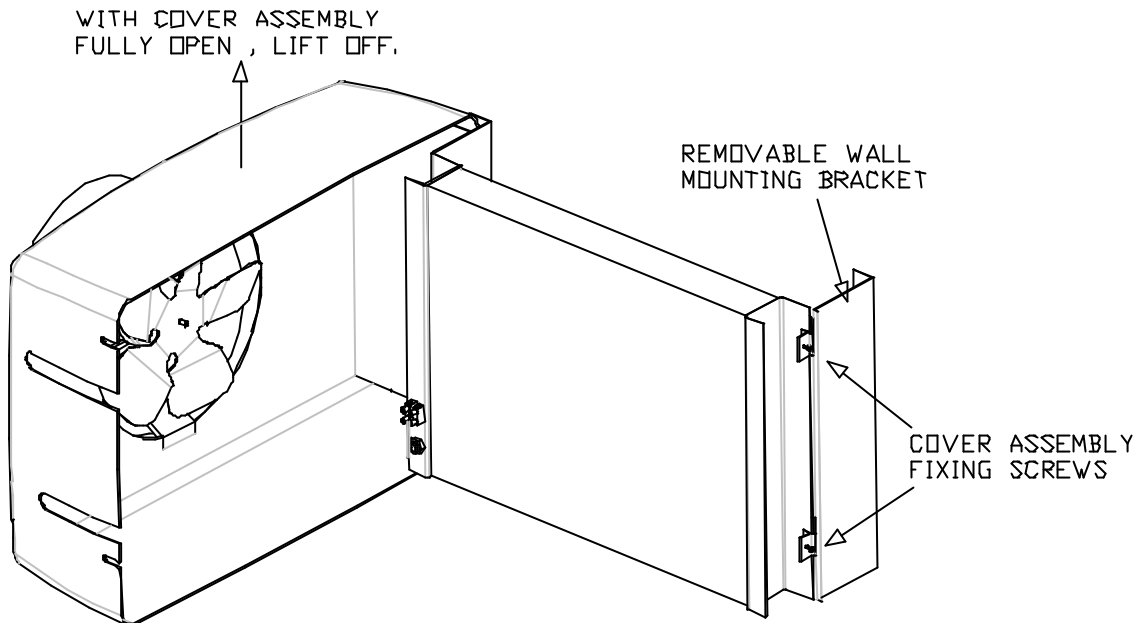
The system will reset itself, but if the fault persists, it should be rectified before further operation.

HEAT DUMP installation instructions



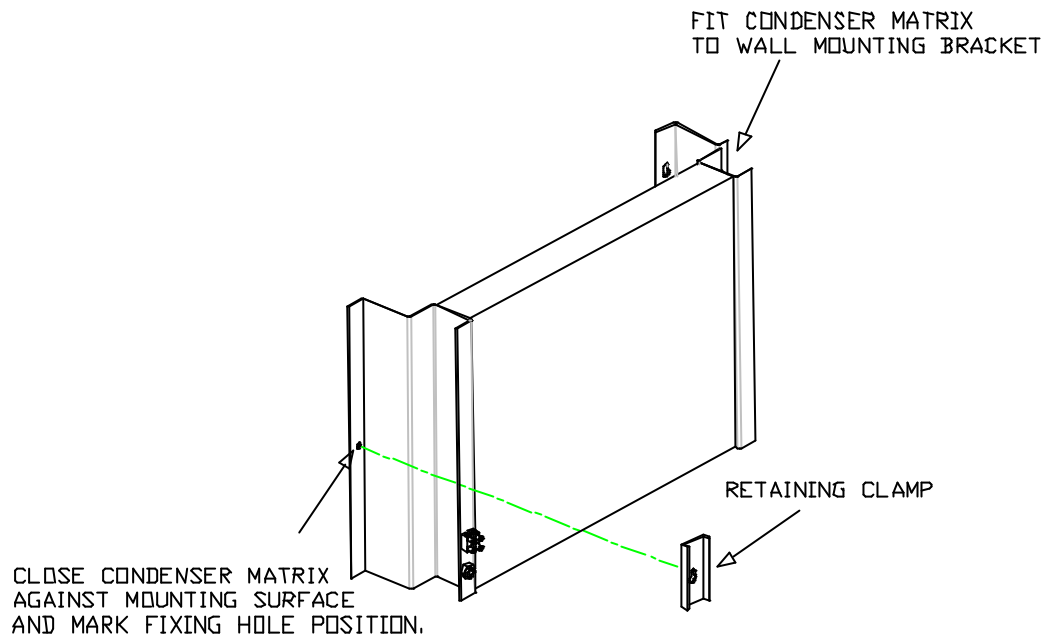
NOTE: The unit should be installed and serviced by a suitably trained person.

1. Unpack the unit from its transportation packaging and visually inspect for signs of damage.
2. Site the dump in a convenient location, preferably in a non-heat sensitive and shaded area on the outside of the building. If it cannot be installed outside, ensure that the area is free from other heat sources and is adequately ventilated to prevent heat build up from the hot exhaust air from the heat dump. In either situation the heat dump should be sited to allow free circulation of air. The maximum recommended height of the heat dump above the cooler is 9 meters.
3. Remove the wall mounting bracket from the assembly, (mounted on lift off hinges). Slacken the two fixing screws securing the cover/fan assembly to the condenser matrix, swing the cover open and lift off the assembly.

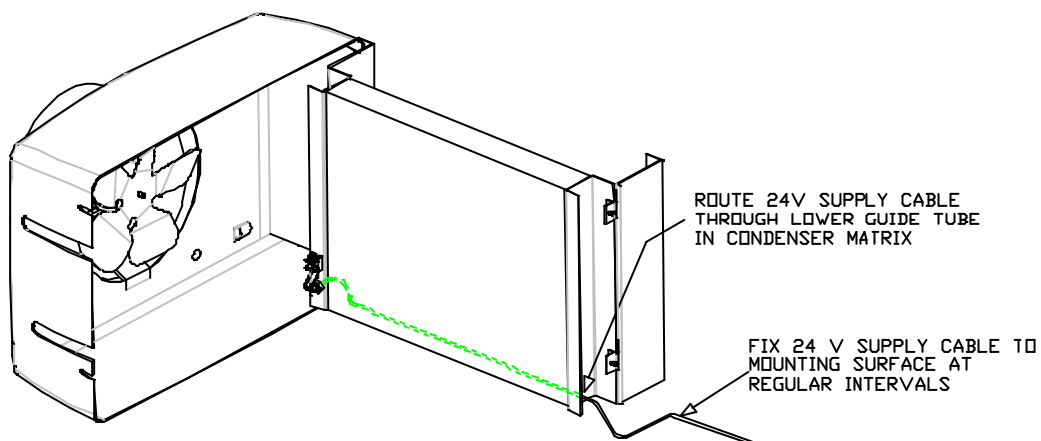


4. With reference to the attached drawing drill the surface onto which the heat dump is to be fitted at the stated mounting hole centers ensuring that adequate clearance is allowed around the heat dump to allow future access for cleaning. The wall mounting bracket can be used as a guide for marking its hole centers. Ensure that the wall mounting bracket is mounted squarely to ensure level movement of the condenser matrix when fitted.
5. Either mark the position of the third mounting screw at the time of marking the wall mounting bracket position, or after fitting the wall mounting bracket hang the condenser matrix on, close against the mounting surface and mark the fixing position. The third fixing screw will pass through the hole in the condenser matrix. The retaining clamp is fitted over the screw which can then be tightened to retain the condenser matrix.
6. Connect the flow and return pipework from the glycol module and base unit to the fittings on the heat dump labeled "FLOW" and "RETURN" and secure the pipes to the mounting surface so that the weight of the pipes is not being carried on the heat dump fittings. Do not kink the pipework as this will restrict coolant flow. Do not insulate the pipework. (pipework mounted on an exterior surface may be insulated if it is felt that due to extreme conditions freezing may occur).

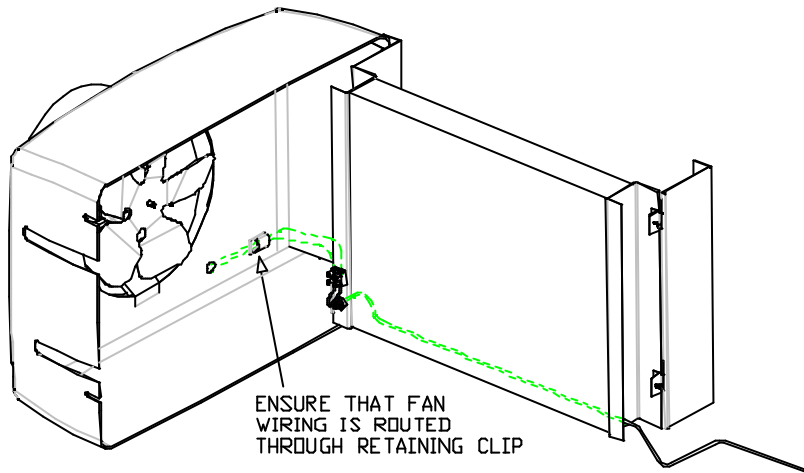
Do not strap the flow and return pipes together as heat transfer between the two will effect the systems performance.



7. Route a twin core 24 volt supply cable (1.5mm csa) through the lower guide tube and then through the strain relief grommet positioned below the two way terminal block on the condenser matrix. The wires are not polarised and may be fitted either way round.
8. Ensure that the amount of cable entering through the main cover is not excessive and cannot become entangled in the fan blade. Tighten the strain relief grommet to support the cable. This should not be the only means of support for the cable, therefore fix back to the mounting surface at regular intervals along the cable length.



9. After the condenser matrix is fully fitted to the mounting surface, hang the cover/fan assembly onto its hinges. With the cover/fan assembly open, connect the wires from the fan to the terminal block. Ensure that the wiring from the fan is routed through the plastic clip provided to prevent the possibility of the wires becoming entangled in the fan blade.



10. Connect the wiring and the Pipework to the cooler following the instructions supplied with the cooler.

Recommended materials for heat dump to cooler connections

Pipework:	15mm OD x 10mm ID COBRACOL tubing.
Cable:	1.5 mm sq., 2 core white PVC covered (no earth)
Insulation tubing:	3/8" or 1/2" ID



Ways the equipment should be used

This unit is intended for use in conjunction with cooling units manufactured by Scotsman Beverage Systems. It is designed to be connected at the end of the water/glycol recirculation lines as a means of removing heat from the cooling system. There are **NO** other recommended uses for this unit.



Power isolation method

1. Switch off the socket that the base cooler unit is installed into.
2. Remove the plug from the socket.



Correct safe handling

Handling of this unit offers no specific hazard.
Unit weight 9 Kgs (20 lbs.) dry.

Adjustments maintenance requirements

It is not recommended that the end user makes any adjustments or carries out any maintenance other than :

1. Check the mains lead and plug visually for condition.
2. Check the unit and its pipework for any evidence of leaks visually.
3. If there is any accidental spillage of liquid onto the unit isolate the Base Coolers mains electricity supply before cleaning up / removing the spillage.



NOTE: THERE ARE NO USER SERVICEABLE PARTS.

Methods of cleaning



NOTE:

Persons performing cleansing /sanitizing operations **MUST** be competent and fully trained in safe methods of use of cleansing / sanitizing agents and their applications.

Personal protective equipment should always be used.

Do not use a water or steam hose to clean the unit whilst still installed.

It is important that all the vents and grills are kept clear (including condenser grills where applicable).

Regarding the cleansing and sanitising procedure please refer to national/EU regulations. For the UK please follow the below mentioned procedure:

TWICE ANNUALLY: By a competent service \ maintenance engineer

1. Isolate the unit from the Base Cooler electricity supply.

2. Open the unit to access both sides of the condenser matrix and remove any extraneous debris from the unit or its casing preferably using a vacuum cleaner or brush.
3. Check unit for electrical safety.

Prevention of freezing / action required if freezing occurs

It is recommended that all exterior Pipework to the unit is insulated to prevent freezing. In the event of freezing up occurring, the following action is recommended :

1. Isolate the unit from base coolers electricity supply.
2. Apply gentle warmth to the general area of the unit and its pipework, taking care not to scorch / burn the insulation tubing surrounding the pipes.
3. Check for obvious leaks.
4. Reconnect the base cooler mains electricity supply.
5. Observe the unit running for a short time watching out for leaks, strange noises or any form of malfunction. If no problems are observed, the normal operation of the unit may be resumed.

MAX. / MIN : ambient temperatures

Minimum	- 5° C. (N.B. 30% glycol / water mix)
Maximum	+ 42° C

Dismantling / decommissioning procedure

1. Isolate the unit from the base cooler or glycol module electricity supply.
2. Disconnect the recirculating coolant inlet and outlet pipes.

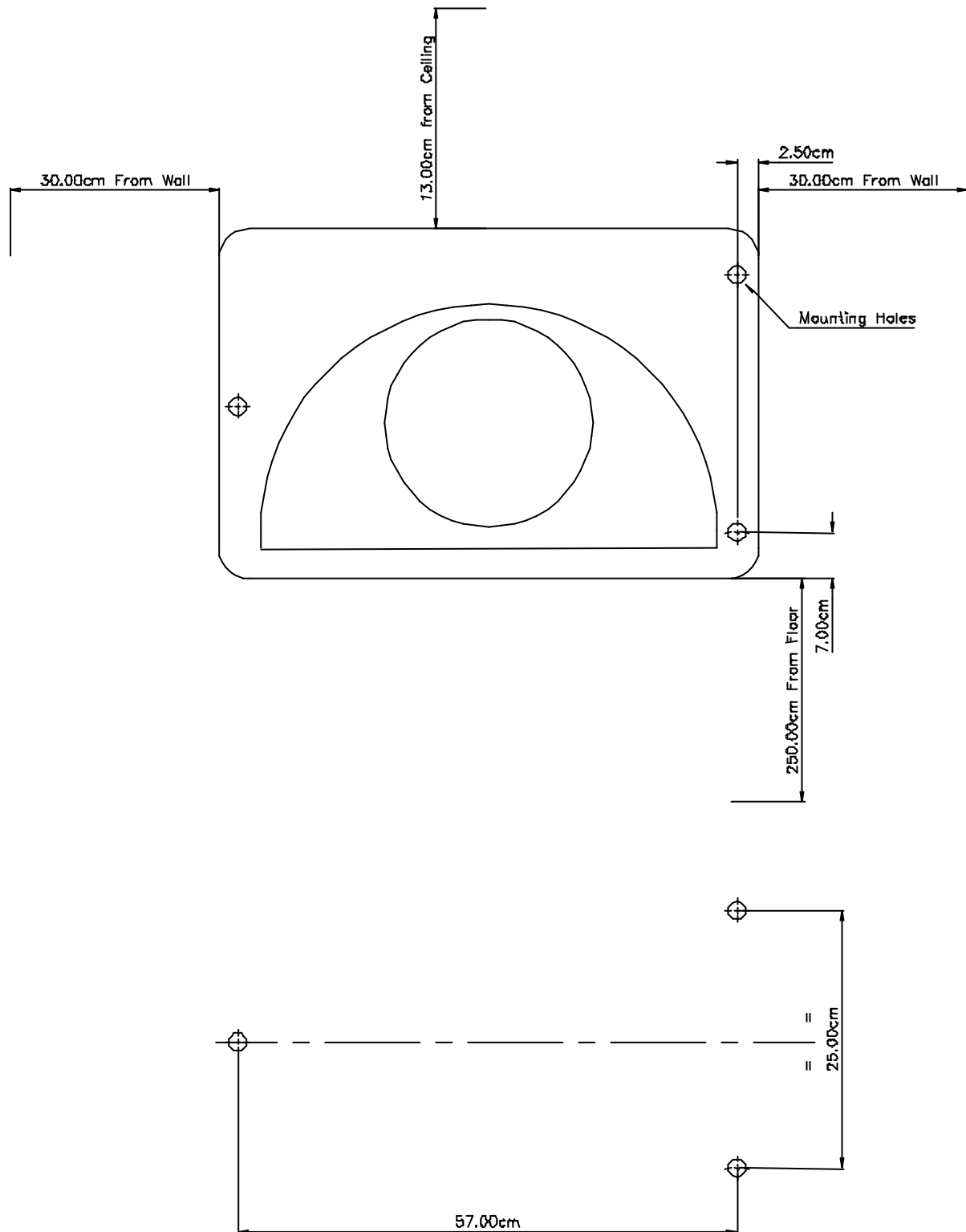


WARNING : **THIS UNIT CAN CONTRIBUTE TO THE AMBIENT TEMPERATURE.**



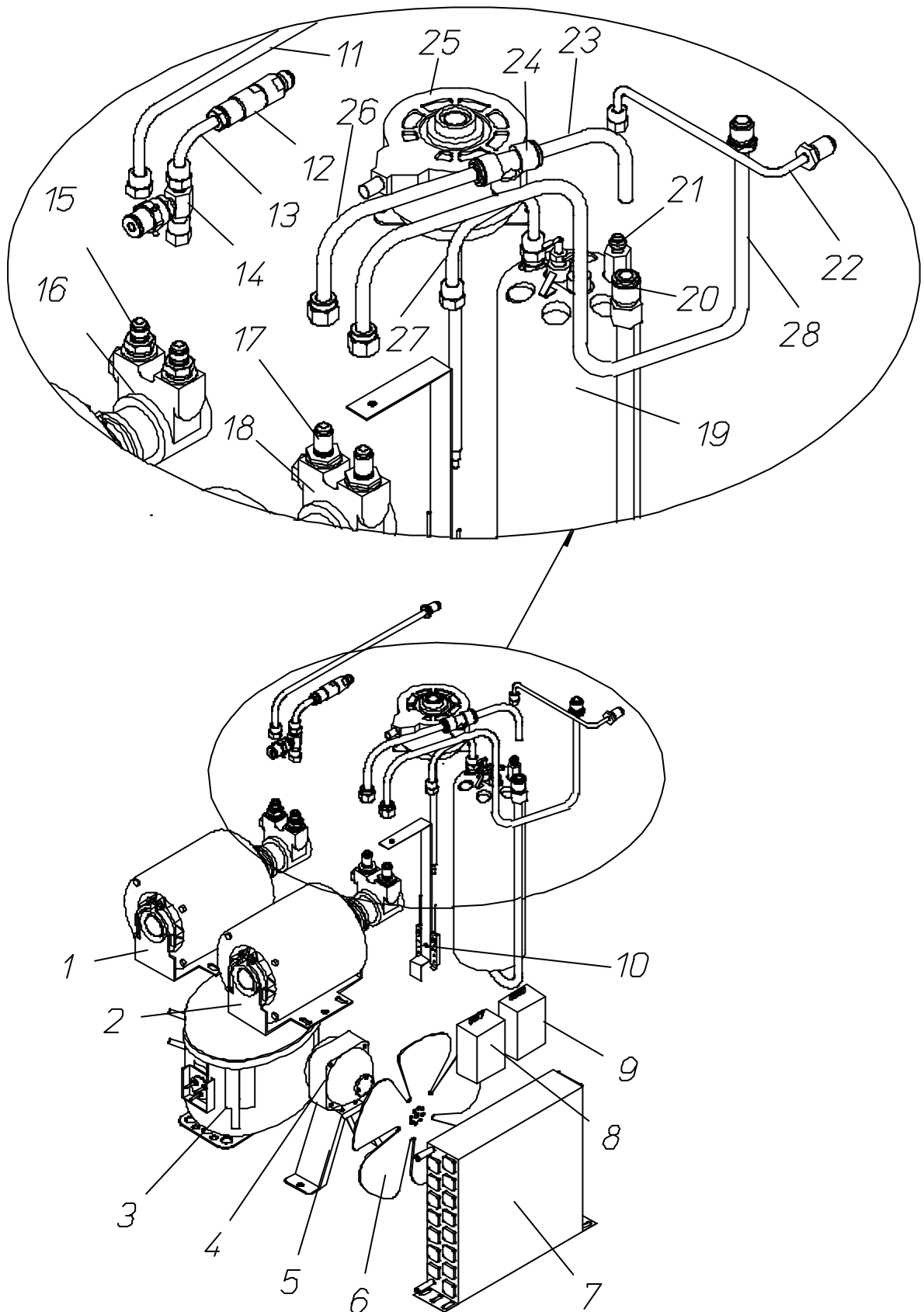
WARNING: **THIS UNIT IS UNSUITABLE FOR USE BY UNSUPERVISED CHILDREN, INFIRM OR AGED PERSONS.**

Minimum distances for mounting the Heat Dump from vertical and horizontal surfaces



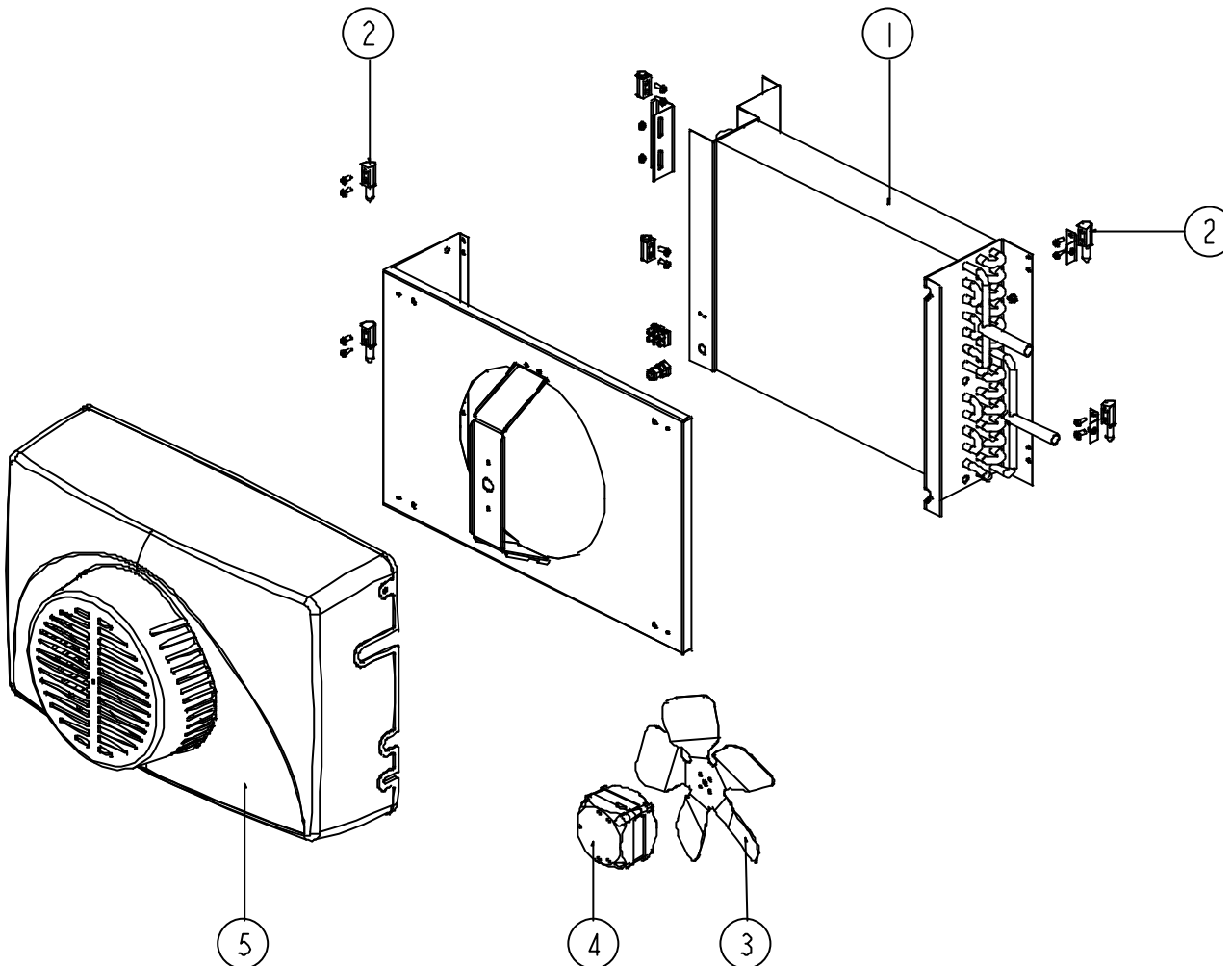
Drilling positions for mounting holes.

5. Exploded drawing and spare parts of Pulsar




Pos.	description	Pulsar 40	Pulsar 60	Pulsar 80	Pulsar 100
1	motor for carbonator pump	85-0223-51	85-0223-51	85-0223-51	85-0223-51
2	motor for circulation pump	85-0222-51	85-0222-51	85-0222-51	85-0222-51
3	compressor	80-1021	80-1022	80-1034	80-1053
4	fan motor	85-0066	85-0131	85-0131	85-0260
5	bracket for fan motor	41-2136	41-2137	41-2137	85-0262
6	fan blade	85-0168	85-0082	85-0082	85-0261
7	condenser	81-0080	81-0080	81-0127	81-0858
8	ice bank control	83-0009	83-0009	83-0009	83-0009
*9	level control	83-0401	83-0401	83-0401	83-0401
10	ice bank sensor	41-1925-1	41-1953-1	41-1470-2	41-2273
11	tube "water in"	42-0987-13	42-0987-12	42-0987-14	42-1167
12	double check valve water	42-0857-10	42-0857-10	42-0857-10	42-0857-10
13	elbow	42-0797-10	42-0797-10	42-0797-10	42-1161
14	cross piece	46-0081-0002	46-0081-0002	46-0081-0002	46-0081-0002
15	threaded adaptor	42-0120	42-0120	42-0120	42-0120 at outlet, 33-0167-30 at inlet
16	carbonator pump	42-0035-01	42-0035-01	42-0035-01	42-0035-01
17	threaded adaptor	33-0167-30	33-0167-30	33-0167-30	33-0167-30
18	circulation pump	42-0127-20	42-0127-20	42-0127-20	42-0127-20
19	carbonator bowl	42-0922-10	42-0922-10	42-0906-21	42-0906-21
20	threaded connector JOHN GUEST	73-0288	73-0288	73-0288	73-0288
21	check valve CO2	42-0955	42-0955	42-0955	42-0955
22	tube "CO2 in"	42-1000-11	42-1000-21	42-1000-12	42-1158
23	tube cross piece - carbonator bowl	42-1059	42-1056-1	42-0985-2	42-1154-10
24	cross piece JOHN GUEST	73-0289	73-0289	73-0289	73-0289
25	agitator motor	85-0221-20	85-0221-20	85-0221-20	85-0221-20 (2 off)
26	tube circulation pump - cross piece	42-1058	42-1055-1	42-0985-1	42-1153
27	tube prechill coil - carbonator bowl	42-0970-10	42-0148-20	42-0970-10	42-1155
28	tube soda recirc pump - housing	42-1102	42-1104	42-1106	42-1156
* : 83-0401-0001 if with carbonator pump time-out facility					

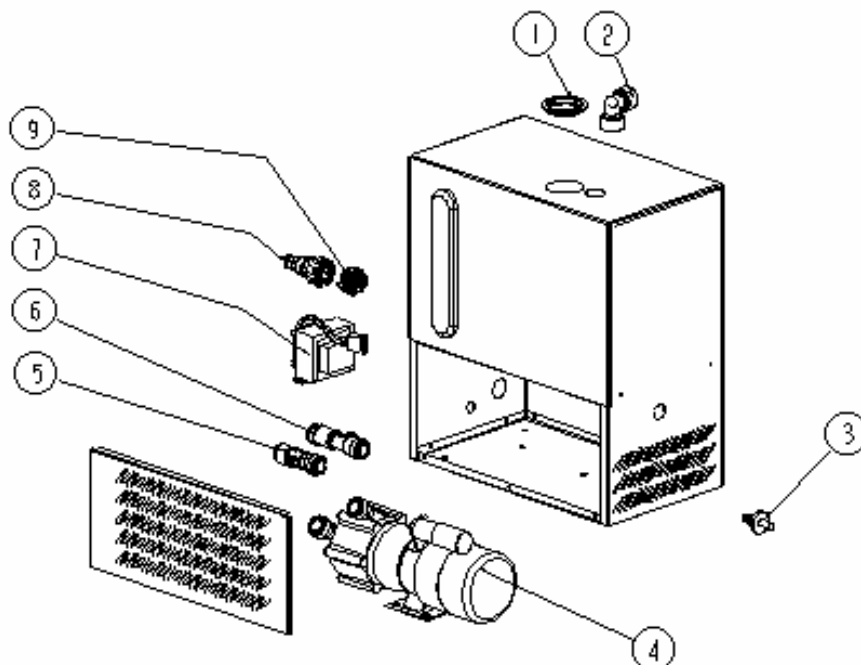
6. Exploded drawing and spare parts of Heat Dump



Item No.	Part Number	Description
1	CN42674	3 ROW HEAT DUMP COIL
2	PI42728	IN-LINE HINGE
3	OP71769	10" SUCKER FAN BLADE
4	MO46688	25 WATT Q-MOTOR - EBM
5	PI45861	HEAT DUMP COWL VISION

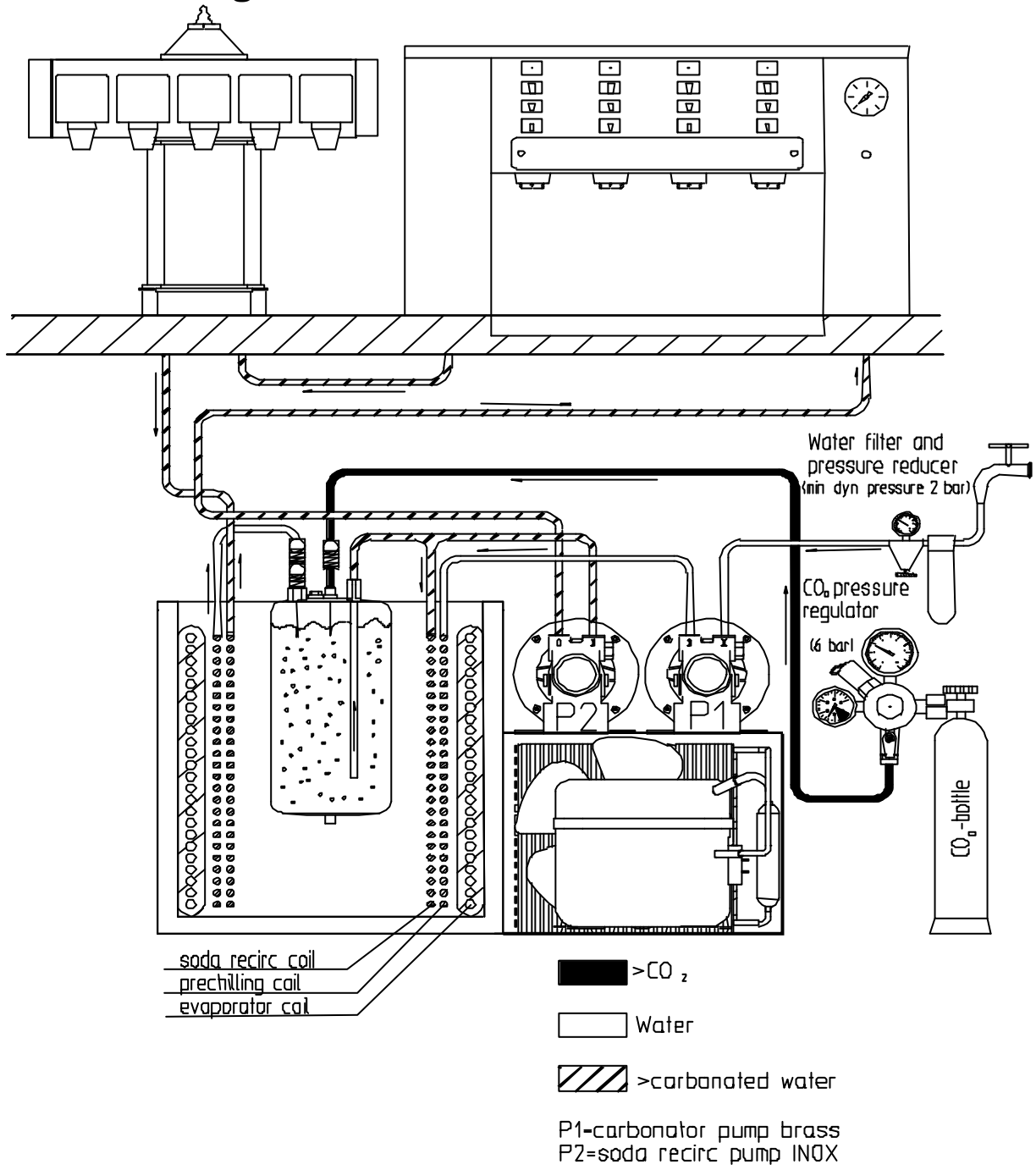
7. Exploded drawing and spare parts of Glycol Module

GLYCOL MODULE			 SCOTSMAN BEVERAGE SYSTEMS	
GMRD1S	Issue Date: 06-11-01	Sheet 28 of 1		
HEIGHT	=	435mm	DRY WEIGHT	= 13KG
WIDTH	=	380mm	OPERATION WEIGHT	= 25KG
DEPTH	=	220mm		



Item No.	Part Number	Description
1	OP73718	FILLER PLUG
2	OP72094	15mm ACORN ELBOW
3	OP73630	BRASS TAIL
4	PU73602	3 STAGE MAG. DRIVE PUMP
5	OP73168	SHUT OFF VALVE
6	OP73326	CHECK VALVE
7	OP74396	TRANSFORMER
8	OP73829	SEALED PLUG - 2 WAY
9	OP73828	SEALED SOCKET - 2 WAY

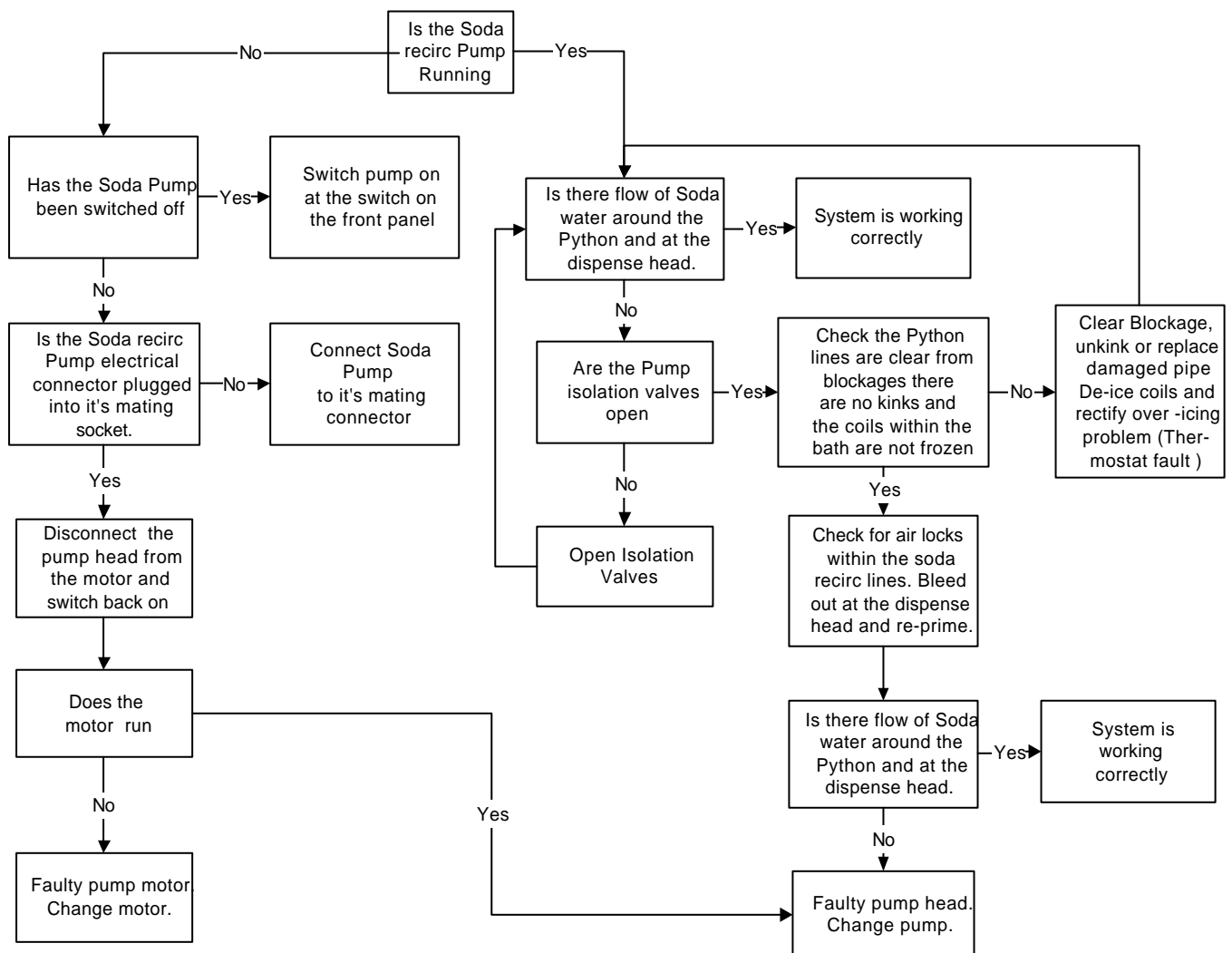
8. Flow diagram



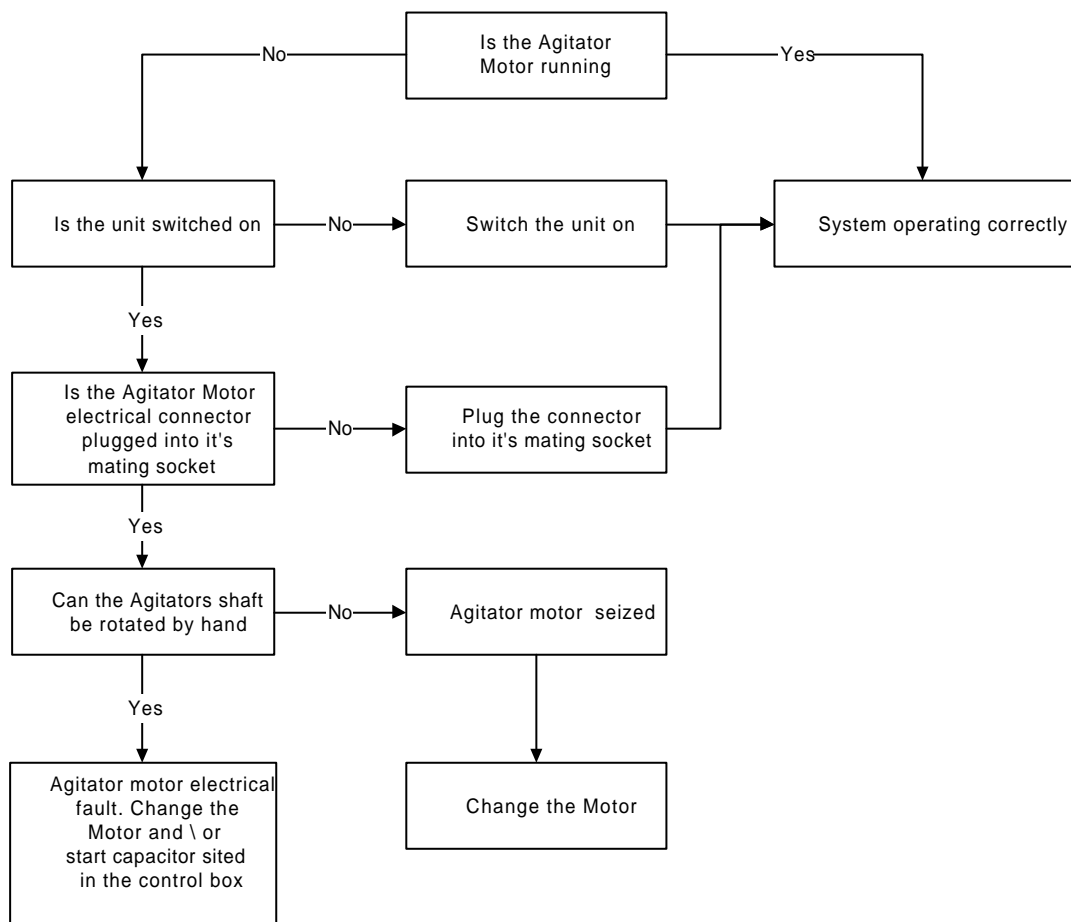
10. Fault analysis

Kind of malfunction	Reason	Solution
Beverages too warm	Cooler switched off or not connected to mains electricity	Switch cooler on or insert plug
	Control damaged	Change Control
	Compressor defective	Change compressor (only skilled persons)
	Refrigerant leakage	Find and repair leakage and refill circuit (only skilled persons)
	Waterbath empty	Fill waterbath with clean water until overflow level is reached
	Recirculation pump defective or switched off	Exchange recirc pump or switch it on
	Dispense rate too high	Either reduce dispense rate or install stronger machine
	Condenser dirty or blocked	Clean condensor or take care for a free air flow
Beverage is foaming	Dispense rate too high	Reduce dispense rate
	Syrup too old or saturated	Change syrup
	Beverages too warm	Look at section „Beverages too warm”
Beverage plain (not saturated enough with CO ₂)	CO ₂ -cylinder empty	Change CO ₂ -cylinder
	Pressure regulator is shut off	Open valve
	Pressure regulator frozen due to dispense rate too high	Either split CO ₂ -feed to several cylinders or install a pressure regulator heating
	Mains water pressure higher than CO ₂ -pressure	Modify pressure adjustments
Valve dispenses only gas	Carbonator pump defect	Exchange pump
	Water valve shut off or carbonator not connected to mains water	Open valve or connect unit to mains water
	Level control defect	Exchange level control
	Soda circuit frozen	Melt ice bank, search for the reason and repair (see section “soda circuit frozen”)
Soda circuit frozen	Ice bank control defect	Change ice bank control
	Agitator defect	Change agitator
Beverage is too sweet	Wrong brix adjustment at dispense valve	Modify brix adjustment

FAULT DIAGNOSIS FLOW CHART SODA RECIRCULATION PUMP

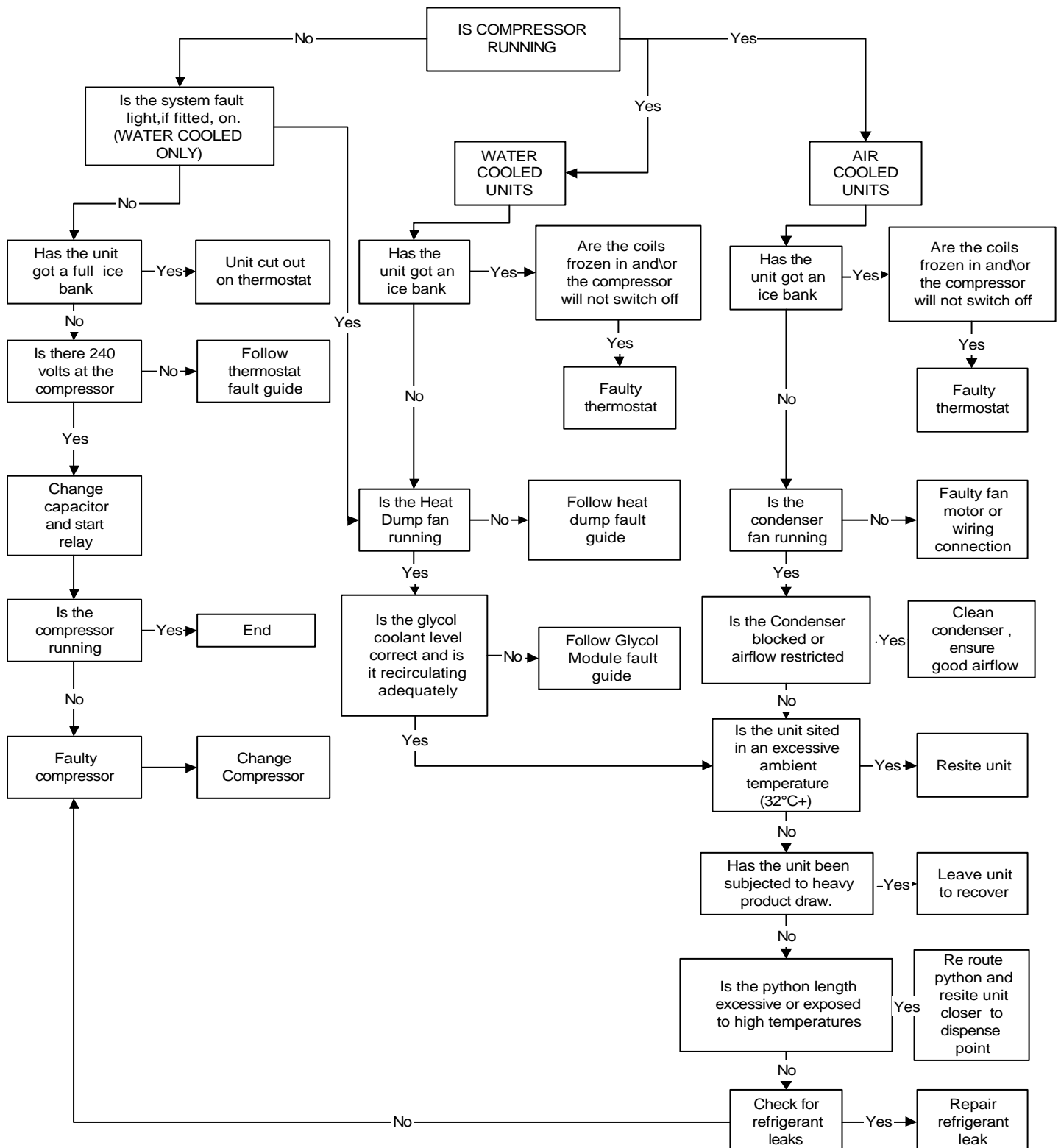


FAULT DIAGNOSIS FLOW CHART AGITATOR MOTOR



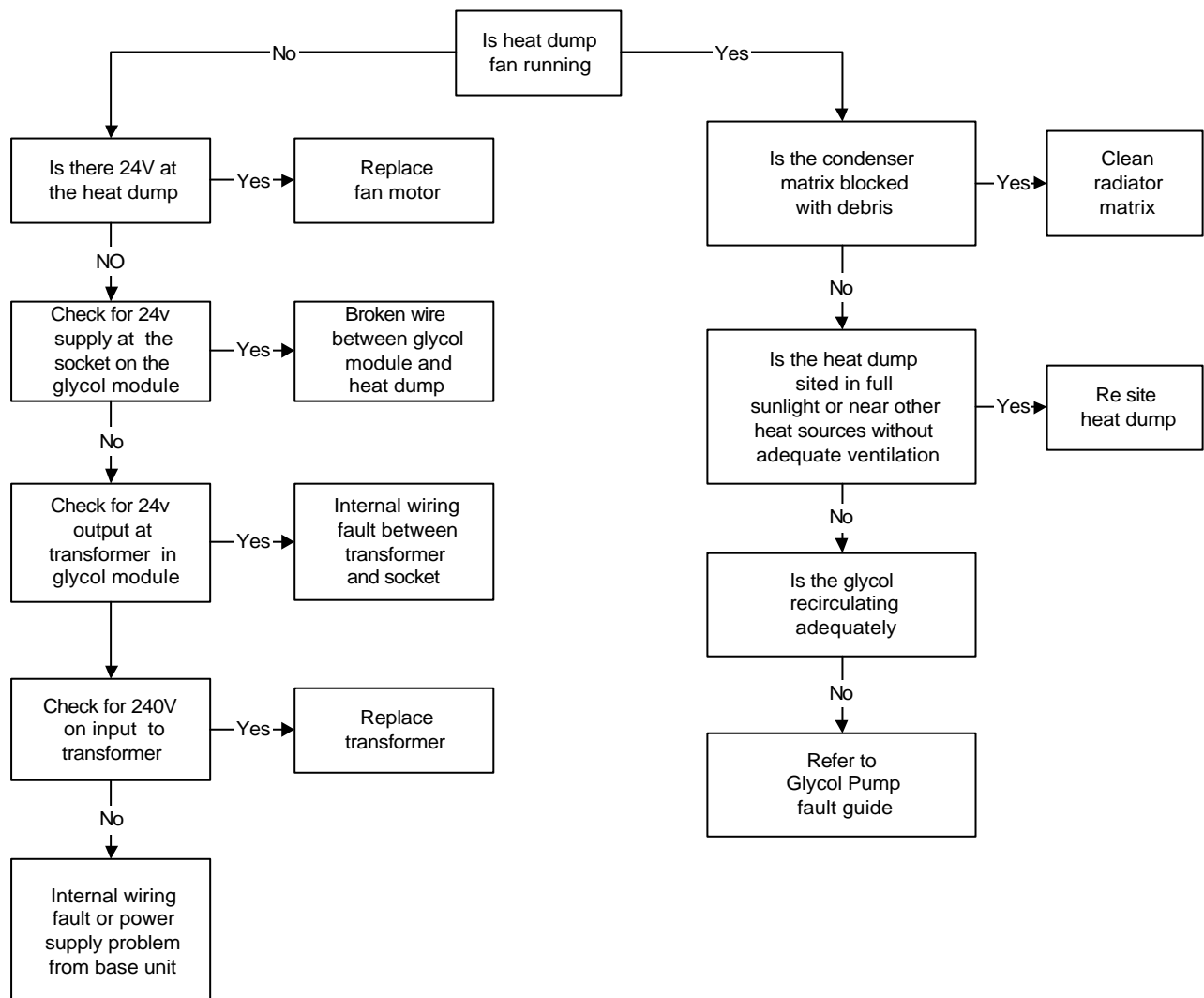
FAULT DIAGNOSIS FLOW CHART

REFRIGERATION SYSTEM

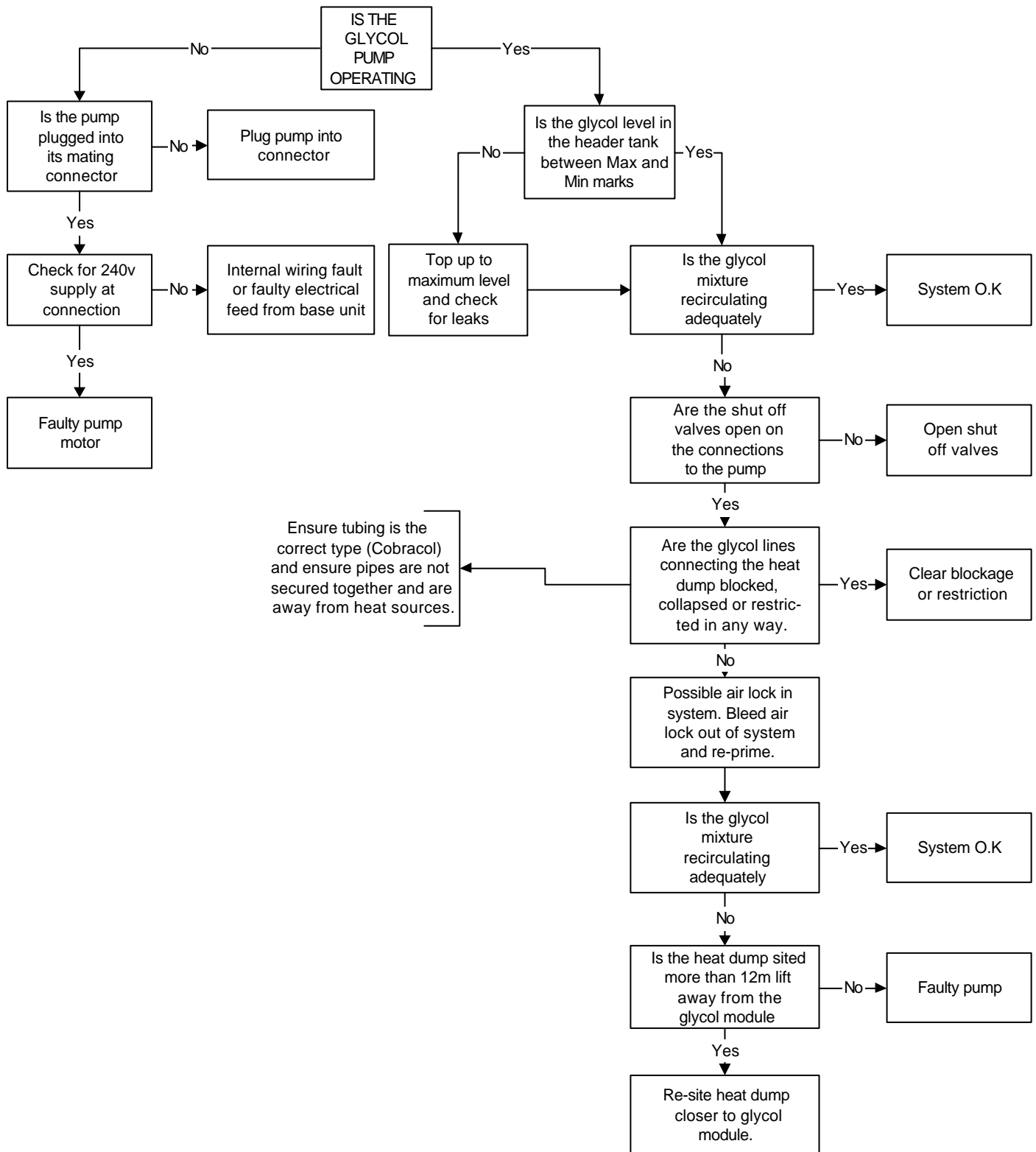


FAULT DIAGNOSIS FLOW CHART

HEAT DUMP (WATER COOLED UNITS)

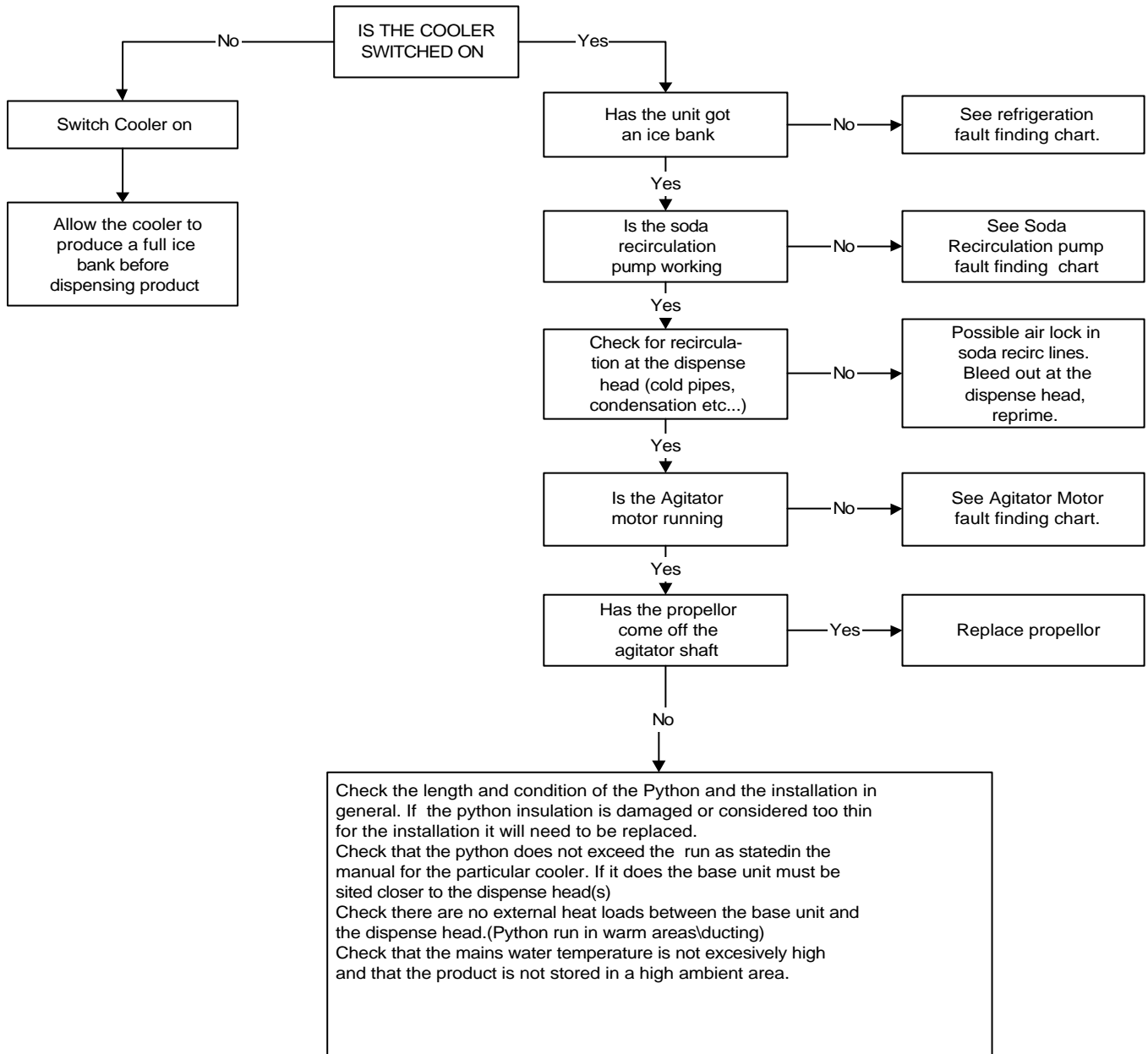


FAULT DIAGNOSIS FLOW CHART GLYCOL MODULE (WATER COOLED UNITS)



FAULT DIAGNOSIS FLOW CHART

PRODUCT TOO WARM



DANGEROUS



WARNING



1. **ALWAYS** connect the CO₂ or gas cylinder to a **REDUCING VALVE**.
2. **NEVER** try to connect cylinder directly to product container.
3. **NEVER** interconnect soft drinks, CO₂ or gas cylinder equipment with other equipment.
- 4.. **ALWAYS** secure cylinder upright whilst in use.
5. **ALWAYS** keep cylinder away from heat.
5. **NEVER** drop or throw cylinders.
7. **NEVER** try to unscrew fittings from containers.
8. **ALWAYS** ventilate area after CO₂ leakage.

This information should be displayed in a position adjacent to the CO₂ supply cylinder at all times.



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subject to alteration

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